American Druggist
AN ILLUSTRATED TRADE JOURNAL.
VOL. XXI. No. 4. NEW YORK, FEBRUARY 15TH, 1892. WHOLE No. 226.

THE SYSTEM OF FURNISHING MEDICAL AND SURGICAL SUPPLIES FOR THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTION OF THE CITY OF NEW YORK.

THIS number contains illustrations of a municipal Bureau which bears about the same relation to the public institutions of New York City as does the Pharmacie Centrale to those of Paris. Like the latter, New York has a Department taking care of all those who become a public charge. This is known as the Department of Public Charities and Correction. The principal institutions under its jurisdiction and management are the following: Bellevue Hospital; City (formerly Charity) Hospital; Randall's Island Hospital; Infants' Hospital; Ward's Island (formerly Homœopathic) Hospital; Harlem Hospital; Gouverneur Hospital; Almshouse; New York City Asylum for the Insane (4 branches); Penitentiary; Workhouse; City Prison (Tombs); Four District Prisons; Outdoor Dispensaries at Bellevue Hospital, Harlem Hospital, Gouverneur Hospital, and in Westchester Ave., and a number of other, minor institutions, which are attached to and supplied from the larger ones. The total number of persons supported in these institutions with money raised by taxation is, at the present time, about 17,000, and of this number about 8,200 are inmates of the hospitals proper and the Almshouse. Aside from these, there are about 60,000 persons (each person being counted but once) annually treated in the public dispensaries.

Manifestly, the proper care of the sick poor falling to the charge of the city requires a corresponding amount of medical and surgical supplies, and a systematic and properly regulated method of procuring, distributing, and accounting for them.

The professional management of the different institutions is confided by the Board of Commissioners of Public Charities and Correction to medical boards consisting of prominent physicians and surgeons, among them the leading authorities and exponents of medical science connected with the Medical Colleges of New York City, who deem it an honor and privilege to serve on such boards, but to whom the city and the public are, in their turn, deeply indebted for their services given gratuitously.

The Bureau having charge of all medical and surgical supplies, known as the "General Drug Department," is located in a building upon the grounds of Bellevue Hospital, in East 28th Street (entrance on East 26th Street, between First Avenue and East River), which was erected in 1887 after plans designed by the present head of the Bureau. The functions of the General Drug Department can be best explained by giving an account of the methods employed for ascertaining the wants of the different institutions and furnishing the required supplies.

Every fortnight each institution makes a series of requisitions for various classes of supplies, of which only two interest us here, namely, medical and surgical. The requisitions for these, for which separate accounts are kept, are forwarded to the General Drug Department. All other requisitions are directed to the Storehouse on Blackwell's Island. These requisitions contain lists, with specified quantities, of every article estimated to be required during the ensuing two weeks, the quantities being based on the amounts actually consumed during the preceding fortnight, special explanations being given for any variations in kind or amount on the new requisition. These documents are carefully examined and passed upon, provisionally, by the head of the Bureau, and are then submitted to the Board of Commissioners for action. At the same time the head of the Bureau—who is the official chemist of the Department—submits general requisitions, one for medical and another for surgical supplies which need to be purchased either for filling certain lines on the requisitions or for replenishing stock in the General Drug Department. After these requisitions are approved, their cost having previously been ascertained, the supplies are purchased (or ordered from contractors, as the case may be) by the purchasing agent of the Department. At the end of each month, bills (called Distribution Sheets) are sent to each institution, on which every item delivered is charged at cost, which bills (if correct, or when corrected) are returned, signed by the head of the institution, to the General Drug Department. Each and every item received by or supplied from the latter can thus at any time be accounted for.

In addition to the regular fortnightly requisitions received from each institution, there are received daily many special requisitions for articles suddenly exhausted and urgently needed, for which reason a sufficient stock of all regular hospital supplies must be kept on hand, since delay would, in many cases, involve the life of a patient.

We have not space here to give detailed statistics of the cost of supplies and the amounts consumed at the different institutions. The respective figures may be found in the printed annual reports of the Department.* We may be permitted, however, to present below a comparative statement of the amounts of the principal antiseptics, antipyretics, hypnotics, and some miscellaneous articles

* Those for 1887 to 1891 will shortly be issued.

consumed in the public institutions since 1871, since these figures are of great practical importance, showing either the stability in the consumption of articles of recognized merit, or the gradual growth or decline of others.

An important function of the General Drug Department is to manufacture most of the pharmaceutical preparations (fluid extracts, etc.), and such chemicals as can be more economically made than purchased, or such regarding which an absolute guarantee of identity and purity is required.

The determination of the standard and quality of the medical supplies purchased in the market, or manufactured on the premises, naturally involves a large amount of analytical work, which forms another important function of the Bureau. Aside from this, it is also charged with the inspection and analysis of various technical and food products, urinary analysis, and kindred investigations.

The illustrations show the external appearance of the building used as a laboratory and store house; the interiors of the manufacturing department and of the room for storing supplies. The office and private laboratory of

CONSUMPTION OF VARIOUS HYPNOTICS, ANTIPYRETICS, ANTISEPTICS, AND SOME MISCELLANEOUS SUPPLIES IN THE PUBLIC INSTITUTIONS OF NEW YORK CITY FROM 1871 TO 1891, INCLUSIVE.

Hypnotics, Sedatives, etc.

	Opium in all forms.	Morphine Sulphate.	Codeine.	Sulfonal.	Chloralamide.	Paraldehyde.	Somnal.	Hyoscyamine Sulph. amorph.	Urethane.	Chloral.	Potassium Bromide.
	lbs.	ozs.	ozs.	ozs.	ozs.	lbs.	ozs.	Gm.	lbs.	lbs	lbs.
1871	85	86	....	....	..	. .	....	....	...	82	300
2	83	175	3	..	...	...	....	..	...	50	600
3	90	200	2	...	....	....	....	....	....	75	600
4	112	250	5	....	....	..	....	....	...	65	600
5	112	175	....	....	...	..	..	.	...	108	800
6	120	175	..	....	..	....	....	....	....	125	825
7	104	159	1	...	....	....	....	..	..	135	850
8	94	116	2	....	...	..	.	....	...	155	900
9	104	126	3	...	..	..	...	11	....	220	1006
1880	110	110	...	....	...	....	....	11	...	223	900
1	112	120	4	.	...	..	....	19	....	250	1300
2	116	135	....	....	....	....	....	29	....	190	1250
3	94	150	2	....	....	....	....	56	...	205	1300
4	97	200	5	..	....	....	....	66	...	524	1200
5	95	182	3	....	....	....	....	105	..	506	1000
6	97	200	17	..	...	4	...	101	10	448	1200
7	99	200	13	..	....	...	....	110	2	448	1100
8	100	200	12	34	...	66	....	123	2	280	1000
9	100	150	5	566	41	45	1	140	...	448	600
1890	98	115	18	800	160	5	40	165	8	224	900
1	99	127	34	850	145	20	160	207	....	331	600

Antiseptics.

	Carbolic Acid.	Corrosive Sublimate.	Iodoform.	Balsam of Peru.	Aristol.	Iodol.	Salicylic Acid and salts.
	lbs.	lbs.	lbs.	lbs.	ozs.	ozs.	lbs.
1871	400	25	....	107	....	....	...
2	200	10	3	100	....	....	....
3	200	10	10	225	....	....	...
4	270	5	9	215	....	....	....
5	400	5	22	350	....	...	21
6	310	5	23	428	....	....	29
7	925	4	44	530	....	....	70
8	900	5	42	450	....	....	66
9	1680	5	63	300	....	....	138
1880	1800	5	47	435	....	....	93
1	2100	7	65	515	....	...	121
2	3200	5	120	90	....	...	115
3	3500	25	180	293	...	...	190
4	2500	152	395	185	..	....	157
5	2800	75	242	152	....	...	150
6	3100	125	254	175	....	4	205
7	3300	205	470	204	....	4	200
8	3400	150	428	230	...	....	302
9	4600	275	462	206	...	18	320
1890	4500	300	807	280	120	35	395
1	4700	350	530	289	500	20	487

Antipyretics.

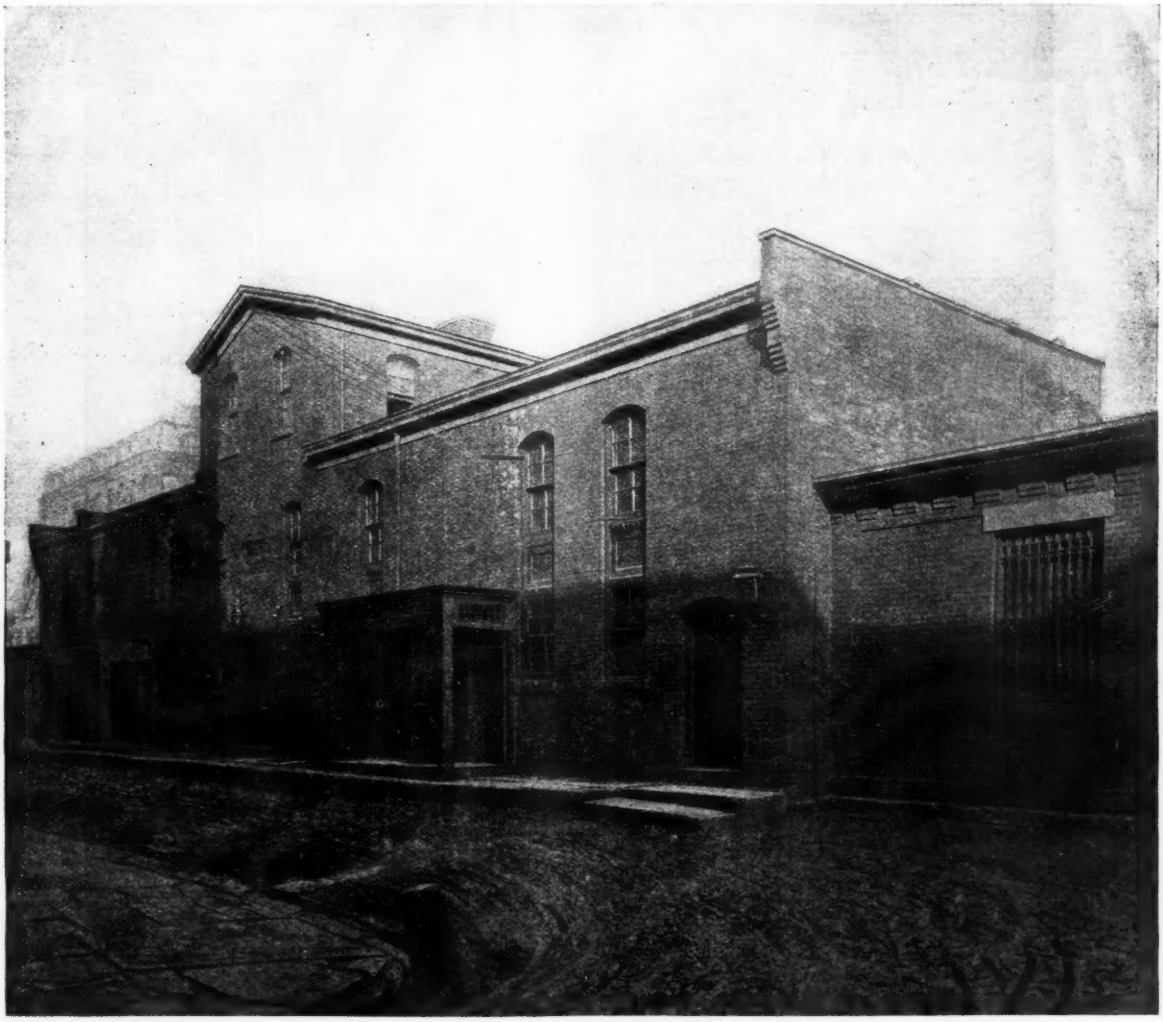
	Quinine Sulphate, pure.	Quinine Sulphate, unbleached.*	Quinidine Sulphate.	Cinchonidine Sulphate.	Cinchonine Sulphate	Total of Cinchona Alkaloids.	Antipyrine.	Acetanilide.	Phenacetin.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
1871	1150	....	...	...	2176	3326	..	....	....
2	1500	....	...	....	2000	3500	...	....	....
3	1525	...	....	....	2160	3685	...	...	....
4	1370	....	....	....	1984	3354	..	...	....
5	500	1350	....	....	1440	3290	....	....	....
6	...	1800	31	600	1360	3791	..	....	....
7	....	1375	....	1100	1600	4075	..	. .	....
8	....	900	415	1270	1728	4313	..	...	....
9	10	1400	260	937	1360	3967	..	...	....
1880	....	1575	369	970	1616	4530	....	..	....
1	10	1450	615	1300	1680	5055	...	....	....
2	37	1450	480	1075	1520	4562	....	....	...
3	1875	....	645	925	1520	4965	....	...	....
4	1975	....	525	1200	2000	4700	58	....	...
5	1400	....	224	600	800	4024	240	....	....
6	2100	...	400	400	1200	4100	150	....	....
7	2400	....	200	1200	496	4296	500	400	....
8	3600	....	200	1000	....	4800	1500	100	40
9	2700	....	. .	1000	...	4300	1500	500	275
1890	2800	....	...	1920	....	4100	1150	240	725
1	3200	....	....	480	....	3680	600	240	1205

Miscellaneous.

	Alcohol for all purposes.	Glycerin.	Ergot in all forms.	Cod-liver Oil.	Bismuth Subnitrate.	Potassium Iodide.	Cocaine hydrochlorate.	Absorbent Gauze (not medicated).	Lint.	Absorbent Cotton.	Chloroform, all brands.	Ether for anæsthesia.
	gal.	lbs.	lbs	gal.	lbs	lbs.	ozs.	yds.	lbs.	lbs.	lbs	lbs.
1871	1211	1200	75	573	90	530	...	.....	800	.....	185	135
2	2028	1600	130	617	112	572	..	.....	1267	....	390	225
3	1376	2000	90	692	160	500	....	.....	1900	.....	447	130
4	949	700	70	724	70	420	...	.....	1450	.....	441	300
5	1322	1700	143	924	75	610	...	.....	1250	.....	332	330
6	1494	1850	173	1102	70	520	...	.....	1200	.....	475	400
7	1495	2700	200	1360	105	645	....	... ..	1550	.....	385	470
8	1534	2800	175	1118	85	750	....	.....	1800	... .	366	550
9	2365	2074	249	1313	106	925	...	.....	1900	6	425	530
1880	1928	2450	243	1728	136	835	...	.....	1830	.....	354	448
1	2057	2400	237	907	180	900	....	.....	2300	45	368	445
2	2693	2360	258	921	170	955	....	.....	2900	100	316	410
3	2659	2504	400	837	202	800	..	.. ..	3450	275	457	420
4	2533	4760	315	830	340	900	½	*	4150	650	446	640
5	2290	1424	301	824	450	975	3½	10800	4070	800	558	700
6	2268	4217	100	900	305	915	24	34300	3400	1514	405	600
7	2752	2329	200	1140	435	1135	72	69800	4750	3900	764	935
8	3005	4650	120	1170	357	1083	132	102400	5900	7900	759	1000
9	2697	5000	110	1350	400	1065	162	120000	6200	8000	830	1100
1890	3022	2200	200	1080	425	950	150	178000	3625	7200	950	1500
1	2794	4000	114	700	475	1050	145	295800	5500	10600	825	1460

* Prevous to 1885 carbolized gauze was used in large quantity, and even after 1885 it was used to some extent. But in 1885 began the custom of preparing sublimate and other medicated gauzes at the bedside. Hence the large increase in unmedicated, absorbent gauze, as well as in lint and absorbent cotton.

the head of the Bureau is illustrated by two views from opposite sides. Other rooms, not shown by the illustrations, provide for the care of special classes of articles. The office of the head of the Bureau is placed between the manufacturing and storage departments, and has telephonic communication with the various institutions and the main office of the Commission at Third Avenue and 11th Street by private wires, and with the general telephone system of the city. The principal rooms extend into the second story and are augmented by a broad



Building of the General Drug Department.

gallery reached by conveniently located staircases. The third story of the central portion furnishes accommodations for some of the employees.

The Purification of Bisulphide of Carbon.—One litre of the carbon bisulphide is treated with 0.5 Cc. of bromine and allow to stand for three to four hours. The excess of bromine is removed by agitation with caustic potash or copper turnings. Any remaining cloudiness may then be removed by agitation with a little dry calcium chloride, with subsequent filtration. The carbon bisulphide treated in this way is colorless, of pleasant smell, and evaporates without residue.—*Sci. Amer.*

[ORIGINAL COMMUNICATION.]

LEGISLATION ON PHARMACY IN THE VARIOUS STATES DURING 1891.

BY HENRY A. RILEY, A.B., LL.B., NEW YORK.

THE year 1891 was noticeable for the number of statutes which were enacted in the different States regulating the practice of pharmacy and medicine.

There were four States which placed general laws in operation making the dispensing of drugs more careful and reliable, viz., Arkansas, California, Oregon, and Washington.

In Delaware, Maine, and Minnesota the existing statutes were amended to a greater or less extent.

In the realm of medicine there were two general laws passed regulating practice, one in Nebraska and one in South Dakota, while in a number of other States quite important changes were made in existing laws.

It will be of interest to review the legislation regarding pharmacy, and see what safeguards and restrictions have been thought necessary in different communities.

In Arkansas a State Board of Pharmacy, consisting of five experienced pharmacists, was established. They were to have been in business for five years to entitle them to serve. All persons who were engaged in pharmacy at the passage of the law were to be registered without examination, but no druggist's clerk unless he was 18 years old and had had three years' experience.

If a person did not apply for registration within six weeks he forfeited the right.

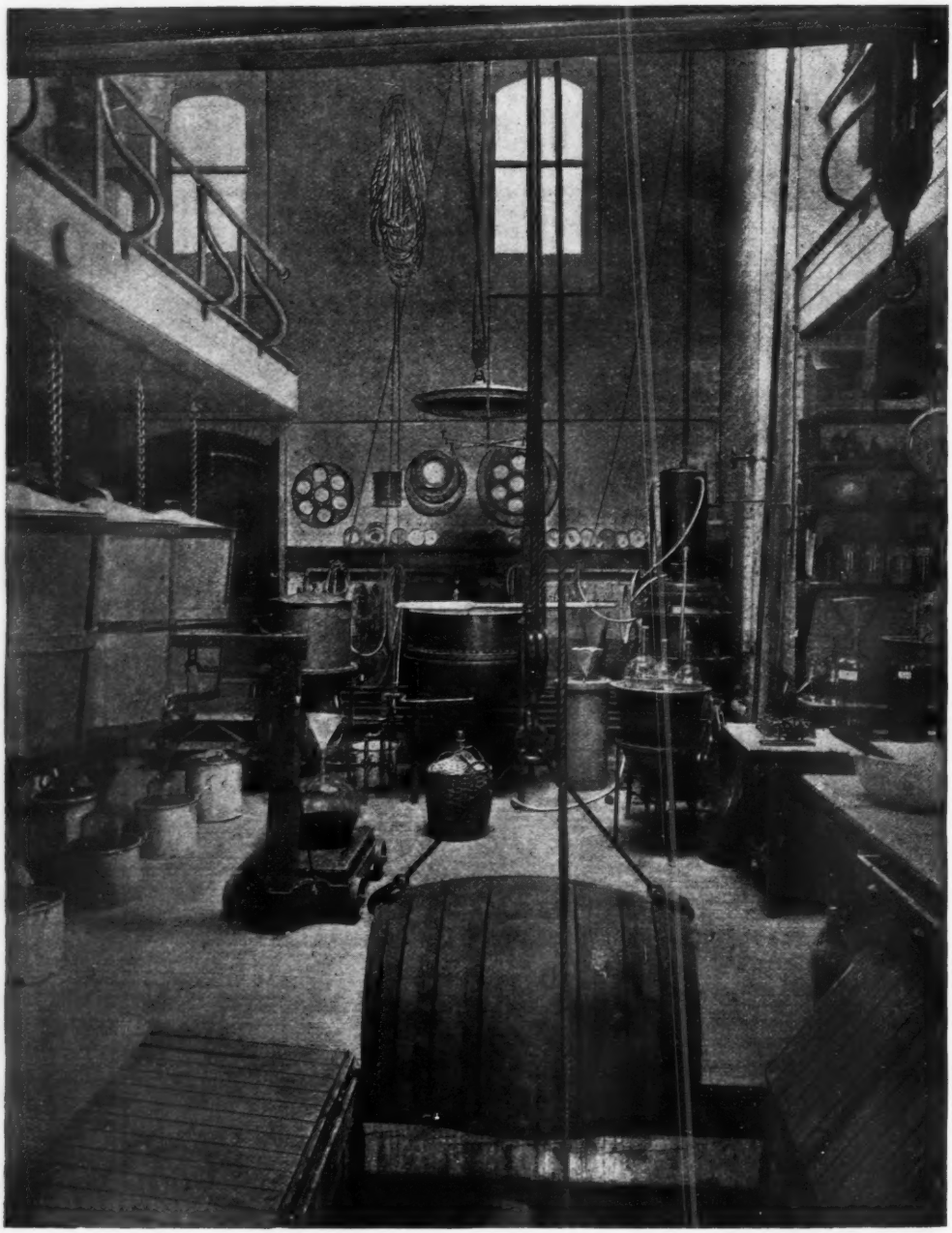
The board was directed to issue a certificate without examination to any graduate of a school or college which required three years' experience before granting a diploma.

The fee for a certificate without examination was $3, and for an examination $6.

If any registered pharmacist wilfully adulterated any drugs or offered such for sale, the offence was a misdemeanor and punishable by a fine varying from $5 to $100.

The same penalty was imposed on any one conducting a pharmacy who was not properly registered.

If a person was out of business for twelve months his certificate expired.

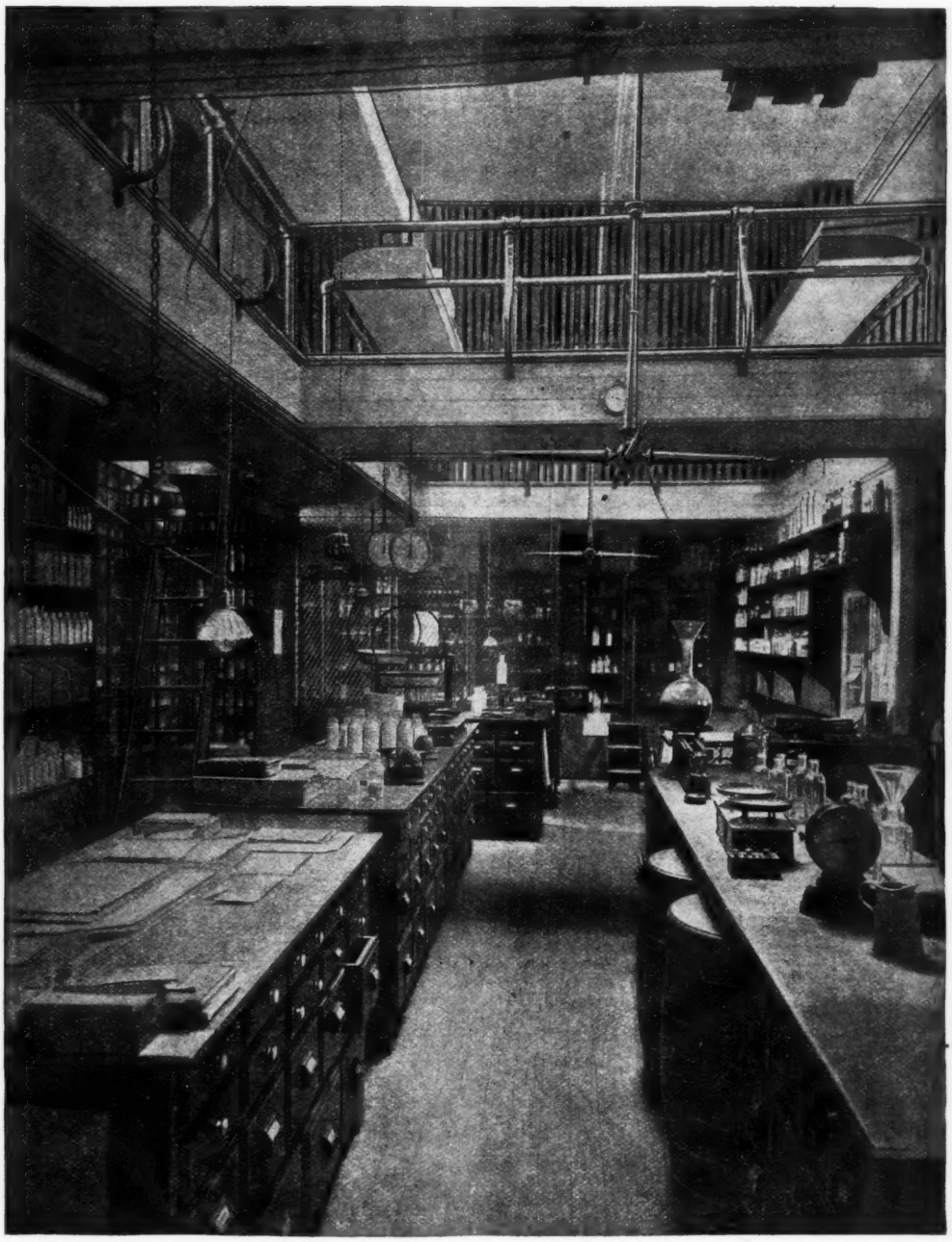


Manufacturing Laboratory (See page 50.)

The law was declared not to apply to physicians putting up their own prescriptions, nor to articles commonly known as "grocers' drugs," nor to patent medicines.

In California a very elaborate and comprehensive statute was adopted, and a State Board of Pharmacy, consisting of seven competent pharmacists, was also appointed. It was declared that after January 1st, 1892, it was unlawful for any one not a registered pharmacist to conduct a pharmacy or compound prescriptions. Registered pharmacists were to be either graduates of pharmacy, licentiates, or practising pharmacists. A graduate must have had four years' experience and possess a diploma from a legally constituted College of Pharmacy. A licentiate must have had four years' experience and have passed an examination before the State Board or present satisfactory credentials to the board. A practising pharmacist was a person who at the passage of the act was conducting a pharmacy.

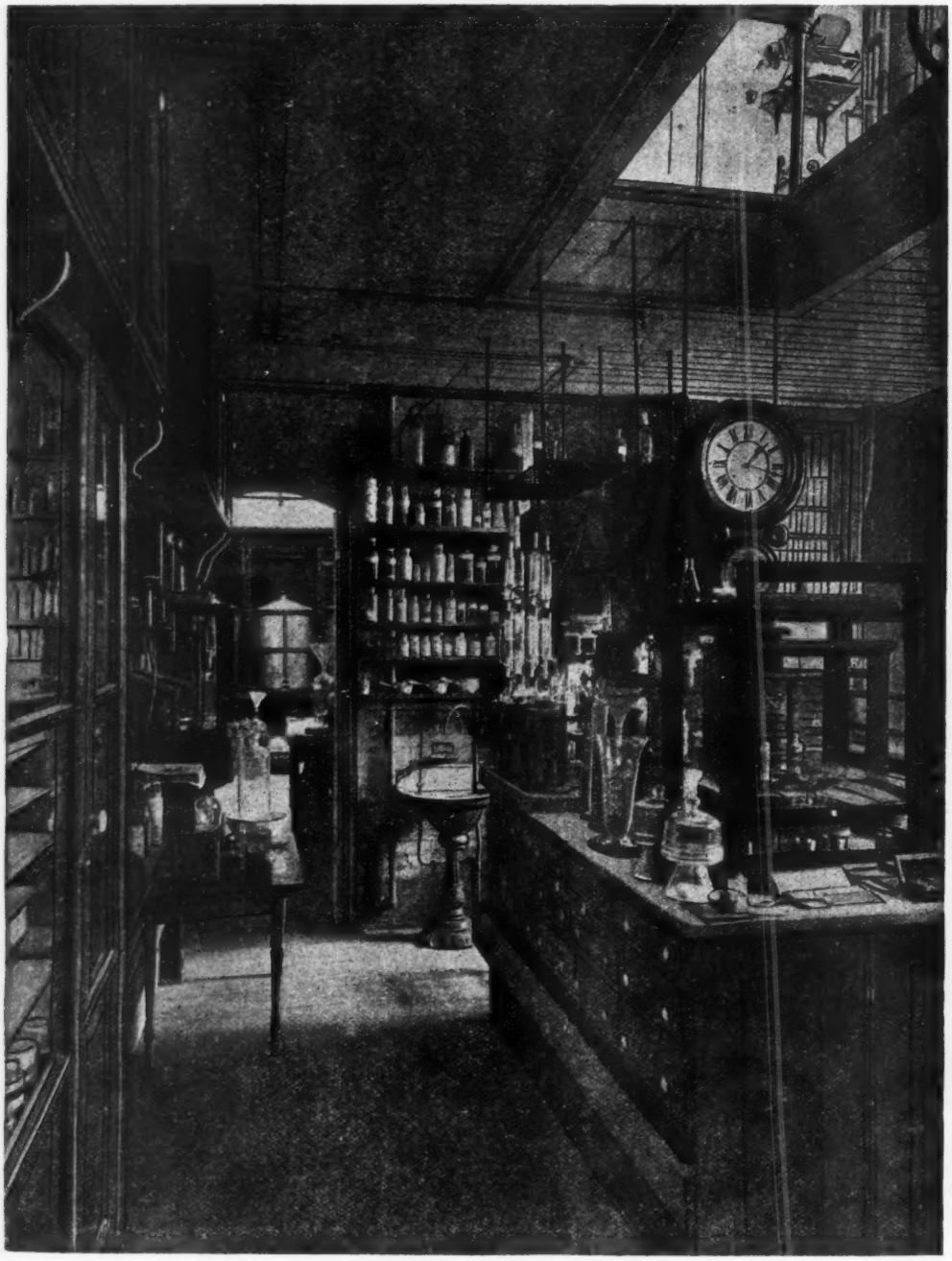
An assistant pharmacist must be 18 years old, have studied two years and passed an examination, or else



Room for Storage of and Issuing Supplies. (See page 50.)

have been in business for three years at passage of the act. If registration was not secured before January 1st, 1892, the applicant forfeited right to register and was obliged to pass an examination. The fee for a certificate was $5.

cided at all, the ownership was placed in the public rather than in any individual. It was required of every registered pharmacist that he should file, or cause to be filed, all physicians' prescriptions compounded or dispensed in his pharmacy, and preserve them for two years. He was



Office and Private Laboratory. (See page 51.)

No adulterated article was allowed to be sold without information being given to the purchaser.

The vexed question of the ownership of a prescription was referred to, and, if it can be considered that it was de-

also required to furnish a correct copy on the order or request of the attending physician.

Violations of the law were declared to be misdemeanors and punishable by a fine of $50 for the first offence and

$100 for subsequent offences. Certain poisons enumerated in Schedules A and B could not be sold without being labelled as poisons and name of the article and seller given. The purchaser must also know the poisonous character of the article and intend to use it legitimately.

In the case of Schedule A the pharmacist must also make an entry of date of sale, the name and address of the purchaser, the purpose, and the name of the dispenser. This record must be open to the proper authorities and be kept for five years.

The schedules are as follows:

SCHEDULE A.

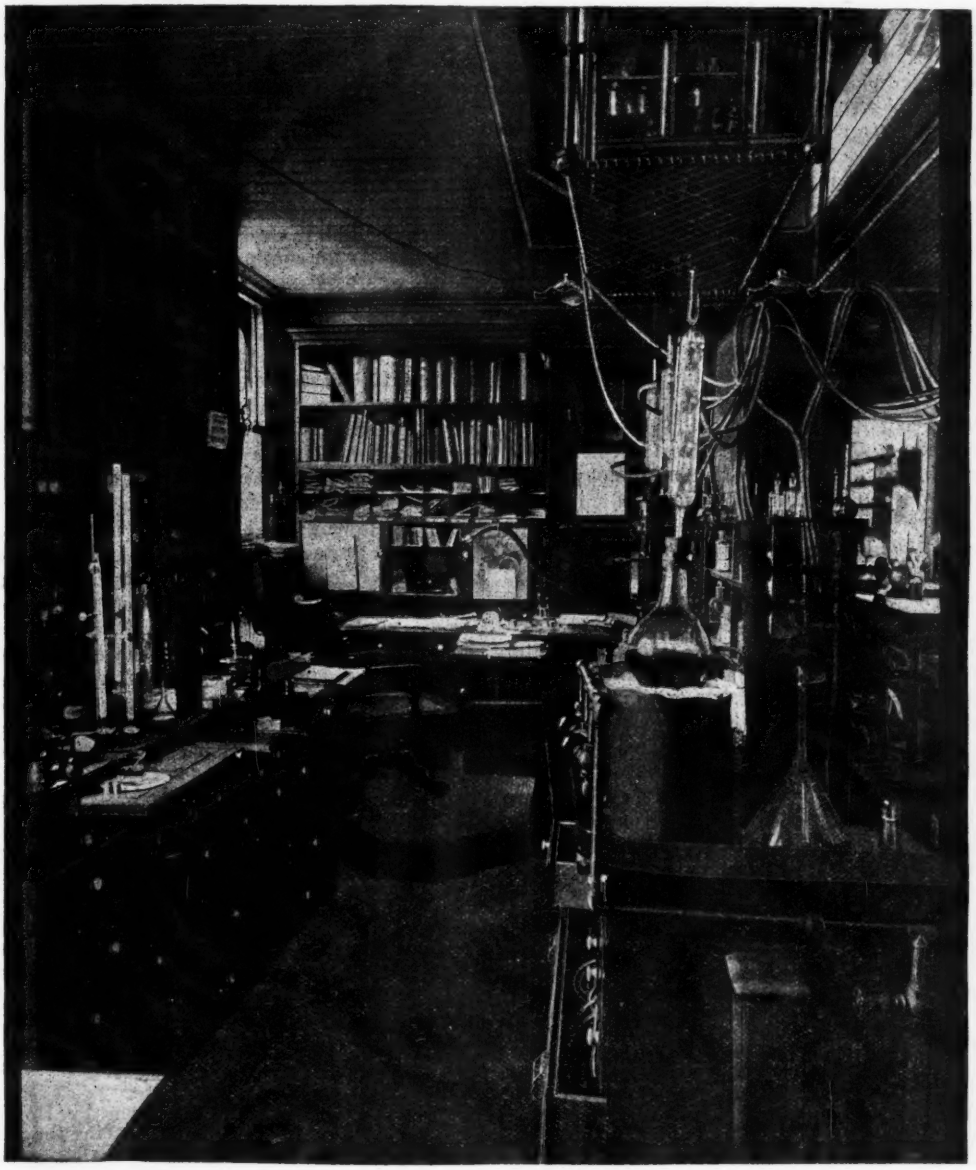
Arsenic, corrosive sublimate, cyanide of potassium, hydrocyanic acid, strychnia, cocaine, and all other poisonous vegetable alkaloids and their salts, opium and all its preparations except those which contain less than 2 gr. to the ounce.

SCHEDULE B.

Aconite, belladonna, colchicum, conium, nux vomica, savin, cantharides, phosphorus, digitalis, and their pharmaceutical preparations; croton oil, chloroform, chloral, sulphate of zinc, sugar of lead, mineral acids, carbolic acid, oxalic acid, white precipitate, red precipitate, biniodide of mercury, essential oil of almonds.

False registration was made a misdemeanor and punished by a fine of $200.

The law was declared not to apply to the business of a practitioner of medicine who does not keep an open shop, nor to an exclusively wholesale business except that por-



Office and Private Laboratory. (See page 51.)

tion requiring poisons to be labelled, nor to proprietary medicines in the original packages.

In Oregon a general statute was also passed, and a State Board of Pharmacy organized consisting of five persons. The statute is somewhat similar to that of California, and requires a registered pharmacist to be either a graduate or a licentiate, or a person in actual business at the time of the passage of the act. There is no requirement, however, for any actual experience as a pharmacist on the part of the graduate or licentiate.

Persons in actual practice are required to furnish satisfactory proof of such employment within three months. The fee for an examination is $5.

Every registered pharmacist, apothecary, and owner of a pharmacy is held responsible for the quality of drugs or poisons, except those sold in the original packages of manufacture and those known as proprietary and patent medicines. If he sells anything adulterated knowingly he is guilty of a misdemeanor and can be fined $100.

All poisons shall be labelled as such, and the bottle or package shall also contain the name and place of business of the seller. The purchaser must also be informed of the poisonous character of the article.

If a person, not a registered pharmacist, assumes the title, he is liable for a fine of $50 for the first offence and $100 for subsequent offences.

Any licensed practitioner of medicine can furnish patients with any articles he may deem proper. The law is also declared not to apply to wholesale dealers or to manufacturers of patent medicines, and does not prevent shopkeepers from selling commonly used medicines and poisons if properly labelled.

The State of Washington has enacted a statute largely along the same lines as California and Oregon. All pharmacists must either be graduates in pharmacy, licentiates, or already engaged in business. Four years' experience is required of a graduate, and three years' of a licentiate.

The State Board of Pharmacy is to be organized by the choice by the governor of five persons from fifteen who shall be elected by the State Pharmaceutical Association.

The State Association is also to elect five each year, from whom the governor shall appoint one.

Persons claiming registration because they were already in business must furnish satisfactory proof of such fact within sixty days. The certificate is to cost $3, and the holder must pay $2 annually. The proprietor of every drug store must keep a registry book, in which there shall be an accurate record of the sales of all mineral acids, carbolic acid, oxalic acid, hydrocyanic acid, cyanide of potassium; arsenic and its preparations; preparations of opium except paregoric; phosphorus, nux vomica, strychnia, aconite, belladonna, hellebore, and their preparations; croton oil, oil savin, oil tansy, creosote, wines and spirituous liquors. The record shall show the name and address of the purchaser, the amount, and the purpose stated.

No wines or spirituous liquors are to be sold except for medicinal, scientific, mechanical, or sacramental purposes. All pharmacists are held responsible for the quality of all drugs and chemicals, except those in the original manufacturers' packages and patent medicines. If any one knowingly or wilfully adulterates any drug or medicinal substance, he is guilty of a misdemeanor and may be fined $500, besides forfeiting to the State all adulterated articles.

Any person, not a registered pharmacist, who shall retail or compound medicines after sixty days from the enactment of the law, shall be liable to a fine of $50; but the law does not apply to a physician in regular practice who may supply his patients with such articles as he deems proper, nor to the manufacturers of patent medicines, nor to shopkeepers who deal in the commonly used medicines and poisons if such medicines and poisons are put up by registered pharmacists, nor to an exclusively wholesale business in drugs.

In Delaware, Maine, and Minnesota the statutes already in force were amended.

In Delaware a person, to be entitled to be registered as a qualified assistant, was required to have three years' continued practical experience in the retail drug business, or pass a satisfactory examination before the State Board of Pharmacy.

In Maine the State Board was made to consist of three Commissioners of Pharmacy, and the law of 1885, which had been rather loosely drawn, was amended so as to require a previous experience in the business of a pharmacist to have been in the State of Maine.

The penalty for continuing in business without registration was fixed at $50 per month for the first offence, and $100 per month for subsequent offences.

In Minnesota the law was amended in a number of particulars. A registered pharmacist must be 21 years of age, and, if licensed, must have had four years' practical experience. If a registered assistant at the passage of the act, he was entitled to a full certificate as registered pharmacist.

The fee for a certificate was $2, and for an examination $5. The penalty for compounding drugs without a license, or allowing it to be done, was a fine of $50; but, as in the other States, this was declared not to apply to the regular practice of a physician, or to the making and vending of proprietary medicines, and the further exception was made in the case of retail dealers who sell alum, blue vitriol, borax, castor oil, gum arabic, Epsom salts, licorice, logwood, saltpetre, water of ammonia, etc., and Paris green labelled "poison." A conviction for violation of the law may forfeit registration. The penalty for not affixing a "poison" label on dangerous drugs is a fine of $5.

The certificate of registration is to be conspicuously exposed.

In the following States the Boards of Pharmacy can issue certificates to the licentiates of the boards of other States without examination, at their discretion: California, Minnesota, Oregon, and Washington.

The salaries of the secretary or other officers of the boards and the fees of the members for attendance at meetings were in several States made wholly payable out of the fees received for registration and examinations. This was the case in California and Oregon.

Thymacetin.—This name is given by Hofmann, of Leipzig, to a derivative of thymol bearing the same relation to the latter which phenacetin does to phenol. Its chemical composition is represented by the following formula, $C_{12}H_{21}NO_2$—that is:

$$C_6H_2.CH_3.C_3H_7 \begin{cases} OC_2H_5 \\ NH(C_2H_3O) \end{cases}$$

It is a white, crystalline powder difficultly soluble in alcohol.

Thymacetin has been found to be a prompt remedy in nervous headache, and is also capable of serving as a hypnotic, though it cannot take the place of morphine. The dose for adults is from 4 to 16 gr. Further reports are promised.

The Reaction between Barium Dioxide and Metallic Salts.

THE following notes are taken from a paper by W. Kwasnik in the *Archiv d. Pharm.*, 229, No. 8:

Barium dioxide or peroxide (BaO_2) is a most useful carrier of oxygen, enabling us to fix the oxygen of the air and to transfer it to other substances at will. When barium oxide is heated in a current of air to a dark redness, it absorbs a second atom of oxygen, which is again given off at a higher temperature, forming oxygen and barium oxide. It is only necessary slightly to lower the temperature to reconvert the oxide into dioxide. Of course this method is suitable only for working on the large scale, and not for laboratory purposes. Recently Kassner has found that calcium orthoplumbate is a substance acting in the same manner as barium dioxide.

When oxygen is required in smaller quantities for laboratory purposes, the reaction between barium dioxide and potassium ferricyanide, first pointed out by Kassner, serves admirably. For this purpose it is only necessary to mix equivalent quantities of the two substances and to pour water on them to produce an energetic evolution of oxygen. The reaction which takes place is as follows:

BaO_2	+	$K_6Fe(CN)_{12}$	=	$K_6Ba[Fe(CN)_6]_2$	+	O_2
barium dioxide		potassium ferricyanide		potassio-barium ferrocyanide		oxygen

Mr. Kwasnik desired to ascertain whether other substances, besides potassium ferricyanide, could cause the evolution of oxygen from barium dioxide. He found that nearly all metallic salts possessed this property, but in varying degrees.

While in the reaction between barium dioxide and potassium ferricyanide the whole of the oxygen of the dioxide is liberated, only a portion is given off in presence of other metallic salts. For instance, the reaction with ferric chloride is thus represented by the author:

$6BaO_2$	+	$2Fe_2Cl_6$	+	$6H_2O$	=			
barium dioxide		ferric chloride		water				
					=	$3O_2$	+	$2Fe_2(OH)_6$	+	$6BaCl_2$
						oxygen		ferric hydrate		barium chloride

It is to be noted that in all these and similar reactions between barium dioxide and metallic salts, the oxygen which is given off is entirely inactive, not a trace of ozone or hydrogen dioxide being produced.

Hypochlorite of Aluminum as a Bleaching Agent.

A SOLUTION of hypochlorite of aluminum has long been employed in bleaching under the designation of "Wilson's Water," and has been much appreciated on account of its activity as a bleaching agent, and also owing to the fact that it does not attack the fibre of the material being bleached to so great an extent as chloride of lime.

The production of this bleaching liquor of aluminum hypochlorite has hitherto been obtained by mixing a solution of aluminum sulphate and an aqueous extract of chloride of lime. This method of producing the bleaching liquor reduces the cost of production considerably, since the two original compounds employed, chloride of lime and sulphate of aluminum, are relatively cheap.

Mr. Weiss has found that a more potent bleaching compound can be prepared by acting upon the aluminates of sodium, calcium, and magnesium with chlorine gas, in a manner precisely identical with that employed in the preparation of chloride of lime.

The bleaching compounds of aluminum can be obtained either in the liquid or solid state.

In the first case the chlorine gas is passed into a solution of sodium aluminate of convenient strength, or into water which holds in suspension aluminate of calcium or magnesium, or the two together.

In the second case the chlorine is passed over the solid aluminates and the bleaching compound thus obtained in the solid form, in the same way as ordinary bleaching powder.

Mr. Weiss allows the chlorine to pass into the solution containing the aluminates in suspension, or over the solid substance, as long as there is any perceptible absorption, taking, of course, all the necessary precautions, such as avoiding too high a temperature, as are requisite in the production of ordinary bleaching powder. When the chlorine escapes in large quantities from the apparatus, the reaction is complete and the bleaching compound contains its full complement of active chlorine.

By prolonging the action of the chlorine a further decomposition ensues, accompanied by the evolution of oxygen gas. At the same time the total chlorine in the compound is increased, but the amount of active chlorine is reduced. This evolution of oxygen may be observed, when the aluminates are employed, dissolved or suspended in water, by the formation of bubbles of gas and frothing.

These compounds of aluminum, produced by the patented process of Mr. Weiss, are exceptionally active as bleaching agents on account of the evolution of ozonized oxygen; paper pulp, tissues, etc., being completely bleached in a short time without the preliminary treatment in an acid bath, etc., entailed when chloride of lime is employed.—*Mon. de la Teint.* and *Sci. Am. Suppl.*

The Manufacture of Light (Voluminous) Magnesium Carbonate.

GERMAN Patent No. 60,381 covers a new process for preparing light or voluminous magnesium carbonate.

Since strongly calcined magnesia absorbs water or carbonic acid gas only slowly, it is necessary to start with a voluminous or light calcined magnesia which readily absorbs the gas as well as water. For this purpose, finely ground magnesia is mixed with so much sodium bicarbonate that the extra molecule of carbonic acid contained in the latter is just sufficient to convert the magnesia into carbonate. The mixture is then treated with seven to eight times its weight of water, causing the mass to form a doughy mass consisting of sodium and magnesium carbonates, not in form of a double salt, but merely as mechanical mixture. The sodium carbonate is removed by washing.

Testing for Sugar in Urine.

DR. G. VULPIUS, of Heidelberg, suggests a method of insuring the correctness of the conclusions derived from applying Trommer's test to urine suspected of containing sugar (*Pharm. Post*, 1892, 7).

It is well known that the urine contains some normal and may contain abnormal constituents which will, at least under certain circumstances, cause a reduction of the test solution (Fehling's) with production of red cuprous oxide. Such substances are: uric acid and creatinin, when present in large quantities; milk sugar, allantoin, mucin, pyrocatechin, hydrochinon, urobilin, biliary pigments. The same reduction occurs after the administration of benzoic, salicylic, or oxalic acid, glycerin or chloral. Hence it is always advisable to employ, alongside of the alkaline copper sulphate reagent, a second one which is not liable to the same drawback. The most preferable are: the fermentation test, the polariscope test, or Nylander's alkaline bismuth tartrate solution.

On the other hand, it often happens that, though urine contains sugar, yet cuprous oxide fails to separate in consequence of the presence of certain compounds interfering with its precipitation. Such compounds are: ammonium salts, creatin, albumen, and products derived from the latter by the caustic alkali of the reagent itself. The interference of ammonium salts may be overcome by heating the urine with caustic alkali until all the ammonia has been dissipated. In the presence of the other substances a separation of cuprous oxide may often be promoted by suitably diluting the urine after it has been boiled with the reagent, or by cooling it, or in other ways.

The non-appearance of a reaction, when Fehling's test is applied to a sample of urine, is, therefore, not an absolute proof of the absence of sugar. But there is a very

simple method to make the result certain, as will be seen presently. If the reaction is prevented by the presence of bodies such as those before mentioned, it will be readily understood that, even if a small quantity of glucose solution were purposely added to the urine, the separation of cuprous oxide would still be prevented. Of course the quantity of glucose thus added must be properly regulated, and the test is best made in the following manner: Heat two test tubes, each containing 5 Cc. of Fehling's solution, until the latter boils, then add to one of them 1 Cc. of the suspected urine previously diluted with an equal volume of water, and to the other 1 Cc. of the same urine previously diluted with an equal volume of a 1-percent aqueous solution of glucose, and again apply heat until the contents of the test tubes boil. If there is now still no change in the two liquids, it may safely be concluded that there are substances present which interfere with the reduction of the copper salt. In such cases, then, recourse must be had to other reliable sugar tests. If, however, there is a reduction in the test tube to which glucose solution was added, this proves the absence of substances interfering with the test; hence if no reduction took place in the test tube to which the urine was added, the latter may be safely regarded as free from sugar.

Influence of Temperature on Digestive Ferments.

THE following is an abstract of a paper by E. Biernacki in the *Zeitsch. f. Biol.*, volume xxviii., 49-71, after *Journ. Chem. Soc.*, 1891, 1271:

Digestive ferments require for their efficiency a certain reaction and a suitable temperature. The best temperature is 39° to 40° C.—that is, a little over that of the body. Higher temperatures destroy the ferment, and the present research is occupied with the determination of the temperature for this latter purpose.

The first ferment investigated was *trypsin*, and it was found that 45° C. markedly lessens its activity, and exposure for five minutes to 50° C. destroys it altogether. The specimens of trypsin employed were some pure, some impure, and certain exceptions to the above-stated rule were noted. It was found that small admixtures with certain salts had the power of increasing the resistance of the ferment to temperature; the activity of the ferment was often lessened by the salt (although this was more marked in the case of pepsin), but the best temperature was 50° C. A temperature of 50° C. lessened, and 60° C. destroyed, the activity of the ferment. The salts which acted thus were ammonium sulphate (a salt used in the preparation of some specimens of ferment used in the preliminary experiments), ammonium chloride, phosphate, and nitrate, and sodium chloride. If mixtures of two or more of these salts were used, the effect was more marked still.

Certain salts (ammonium carbonate and oxalate, magnesium sulphate, sodium sulphate and phosphate), starch, and sugar had no action, but certain products of proteolytic activity (albumose, amphopeptone, and antipeptone) act like salts just enumerated. All the materials that act in this way increase the alkalinity of the digesting medium, minute doses of caustic soda act in a precisely similar way, and the proposition is advanced that the whole of the phenomena are simply dependent on the reaction. Increase of alkalinity protects the ferment. It was found that increase of acidity (trypsin will act in an acid medium if salicylic acid be employed) acts in exactly the opposite way: in an acid medium 33° to 35° C. is the most favorable temperature; 40° C. hinders, and 45° C. destroys, the action of the ferment.

Pepsin was then investigated, and it was found that acidity acts towards this ferment precisely like alkalinity towards the tryptic ferment, the temperature necessary to destroy the activity rising from 65° to 70° C. In a neutral medium the destroying temperature falls to 55° C.

Unfiltered fresh saliva loses its diastatic properties at 75°, filtered saliva at 70°, diluted saliva at 60°, pure ptyalin at 70° C., unless its solution is much diluted, when the necessary temperature sinks to 60°. The influence of salts, reaction, etc., is exactly the same in kind as with trypsin. In all cases, if the pure ferment be used, the influence of temperature, and the influence of salts, etc., on the temperature, are more easily observed than if the ferment be impure, as contained, for instance, in the digestive juice.

The explanation of these occurrences probably lies in the formation of loose compounds with the enzymes, analogous to the pepsin-hydrochloric acid of Schmidt and other authors.

Guajacol Carbonate.

ONE of the latest guajacol derivatives, which is put on the market by the Chemical Works "Dr. F. v. Heyden Nachfolger," in Radebeul, near Dresden, is the carbonate. Of course this has been at once patented—for what new remedy is not, in these days?

The method of preparation is stated to be the following: Two molecules of guajacol, dissolved in water through the intervention of an equivalent quantity of soda, are treated with a current of phosgene gas ($COCl_2$—oxychloride of carbon, or carbonyl chloride). This causes the carbonate of guajacol to separate, and the latter is then washed with water and recrystallized from alcohol.

Guajacol carbonate is a fine, microcrystalline powder, insoluble in water, somewhat soluble in cold, easily in hot alcohol, also in ether, chloroform, and benzol.

In glycerin or in fatty oils it is very little soluble.

Being an ester (compound ether) of carbonic acid, it is easily saponified by alkalies. In all its chemical and physical properties it much resembles salol. Like the latter, it passes through the stomach undecomposed, being split up into its components, guajacol and carbonic acid, only after it has entered the intestinal tract.

Estimation of Hydrochloric Acid in the Gastric Juice.

A NEW and trustworthy method of determining the amount of free and combined hydrochloric acid in the gastric juice has been announced by Mr. J. Luettke, of Rostock (*Ber. d. Pharm. Ges.*, 1891, 403).

In applying this method, the *unfiltered* gastric juice must be taken.

1. *Determination of the total Chlorine.*—Introduce 10 Cc. of the gastric juice, rendered uniform by agitation, into a flask of the capacity of 100 Cc., rinse the measure with several portions of water to be added to the contents of the flask, then add 20 Cc. of decinormal silver nitrate, shake well, and set aside for ten minutes.

Should the gastric juice be deeply colored, it may be bleached by the addition of 5 to 10 drops of a solution (1 in 15) of potassium permanganate. But in most cases this is unnecessary. The permanganate must not be added until all the chlorine has been combined with silver; otherwise it would react with hydrochloric acid, whereby free chlorine would be formed and a loss result.

When the liquid has been duly bleached (if at all), about 1 Cc. of solution of ferric sulphate is added, the mixture made up with water to 100 Cc., well agitated, then passed through a dry filter, 50 Cc. of the filtrate taken, and the excess of silver determined volumetrically by decinormal solution of potassium sulphocyanide (after Volhard; the latter does not react with the iron as long as any silver is uncombined).

Multiply the number of cubic centimetres of potassium sulphocyanide solution by 2, and deduct the product from 20 (the original number of cubic centimetres of silver solution added). The residue represents the number of cubic centimetres actually consumed to bind the chlorine.

2. *Determination of the combined Chlorine.*—Evaporate 10 Cc. of the gastric juice, previously well mixed, to dryness in a platinum capsule which is preferably placed on a sheet of asbestos (not too thick), and to be heated by a flame placed below it. This prevents spluttering. When the residue is dry, incinerate it over a direct flame, heating until the carbon no longer emits a luminous flame. If the ignition is continued too long, chlorides are apt to be volatilized.

Triturate the carbonized mass with a glass rod, extract it with warm water, and filter into a beaker, washing the filter with warm water until 100 Cc. are obtained. To the filtrate add 10 Cc. of silver nitrate volumetric solution, and titrate in the same manner as directed under 1.

Calculation of Hydrochloric Acid.—From the actual number of cubic centimetres of silver solution required to combine with the total chlorine, deduct the number of cubic centimetres of silver solution required to bind the combined chlorine. Multiply the remainder by 0.00365. The product will be the total amount of hydrochloric acid present. If the above remainder be multiplied by 0.0365 the product will be percentage of hydrochloric acid.

Estimation of Phenol by Standard Alkali.

R. BADER has devised a method of determining phenol quantitatively by means of volumetric alkali solution. This had been attempted heretofore, but remained unsuccessful owing to the absence of a suitable indicator. This has now been found by Bader in an alcoholic solution of symmetric trinitrobenzol. The smallest excess of alkali is recognizable by a distinct onion-red coloration. The solution of the indicator is made by shaking a pinch of pure "symmetric" trinitrobenzol (melting point 122° C.) with 50 Cc. of absolute alcohol, and then filtering.

For the volumetric estimation of phenol by caustic alkali, the phenol should not be in too dilute a solution, and the latter should be colorless. The solution ought not to contain less than 2 per cent of phenol (say 20 Gm. in 1 L.).

Of this solution 50 Cc. are put into a beaker, and 2 or 3 drops of trinitrobenzol solution added, which must not change the transparency of the solution or impart color to it. Normal solution of soda is then gradually added from a burette, under constant stirring, or rotation of the beaker. When the color of the contents, towards the end of the reaction, turns yellowish, the soda solution is added in 2 or 3 drops at a time until the reddish-yellow tint caused by it no longer disappears on shaking or stirring. The last 2 or 3 drops thus added are then deducted from the total amount of soda solution added.

The results are stated to be as exact as those obtained by any other method.

The homologues of phenol (cresol, etc.) cannot be determined by this method.—After *Zeitsch. f. anal. Chem.*, 1891, 58.

Refining Petroleum and Lubricating Oils.

PETROLEUM and lubricating oils obtained by the distillation of mineral oils are generally refined by treatment with sulphuric acid and caustic soda, followed by washing with water. Sulphuric acid at 66° B. is mostly employed, the amount used ranging from 2 to 4 per cent for petroleum to 5 to 10 per cent for lubricating oils. The acid is well agitated with the oil, either all at once or preferably in several instalments, the acid being allowed to settle thoroughly after each treatment. The acid combines with and dissolves the olefines and aromatic hydrocarbons contained in the oil, and an oxidizing action also appears to take place, indicated by the evolution of sulphurous acid. This latter action increases with the specific gravity and temperature of the oil, so that it is well to keep the mixture cool. The time of treatment varies from one to two hours, the operation being finished when a sample of the oil shaken with caustic soda solution appears milky and white, or only slightly yellow (petroleum), or when the original greenish-brown color has changed to violet-red (lubricating oil). The loss during acidification is from 1 to 3 per cent for petroleum and 8 to 15 per cent (seldom 20 per cent) for lubricating oil.

The oil is next washed with water and well agitated with a caustic soda solution at 30° to 33° B. The intermediate washing is best omitted in the case of lubricating oils, since it leads very often to the formation of emulsions, which are separated from the oil with great difficulty. The treatment with soda is continued for five to ten minutes at the ordinary temperature in the case of petroleum, while with lubricating oil the action is carried on at 40° to 60° C. until the violet color of the oil is changed to a wine-yellow tint. The consumption of soda lye at 33° B. is about 1 to 1.5 per cent. Too long a treatment with soda must be carefully avoided, in order to prevent the extensive oxidation of the oil and the consequent production of the sodium salts of organic acids.

The salts are partially saponified during washing, the acid liberated being dissolved by the oil and leading to turbidity in the finished product. The oil, after being separated as completely as possible from the lye, is washed with cold water (for petroleum) or with water at 60° to 70° C. (for lubricating oil) until perfectly neutral. Thorough washing is of the greatest importance. Petroleum containing sodium salts in solution burns badly, owing to the incrustation that soon forms on the wick, besides which sulphurous acid is given off if sulphates, etc., be present. The water should be as free from dissolved salts as possible, especially for washing lubricating oils.

After washing, petroleum is left in the reservoirs for twelve to thirty-six hours, so that the last traces of water may settle. Or, after standing for an hour, it may be filtered through a mixture of wood shavings and salt. In either case the oil will be ready for the market. Lubricating oil is kept in a vessel heated by steam until the bulk of the water has settled. It is then transferred to a shallow double-bottomed pan and "boiled" by steam until it is quite bright and clear and no longer froths. In many cases the oil is, after boiling, filtered through animal charcoal, etc.

The apparatus in which the oils are chemically treated may be divided into two groups: first, those in which some mechanical stirring apparatus is employed; second, those in which agitation is effected by a strong current of air entering the bottom of the apparatus. Some authorities hold that those of the first class are much to be preferred. Agitation by means of air currents is certainly more thorough than by any mechanical device; but when the ready oxidizability of petroleum, and more particularly of lubricating oil, and the injurious influence of the acids so produced, are considered, it will be seen that mechanical stirring arrangements are really the more advantageous. In the case of air agitators there is also a much greater tendency toward emulsification, which is very objectionable. The turbidity appearing in finished petroleum, etc., is chiefly due to the presence of organic acids and salts, which gradually separate. The turbidity which badly refined oil sometimes develops in barrels is most likely caused by the action of organic acids on traces of chalk contained in the glue with which the interiors of the barrels are coated.—*Chemical Trade Journal.*

Calcium Salicylate.

THIS salt is used, either alone or in combination with salicylate of bismuth, as a remedy in diarrhœa, particularly of children, and also in gastro-enteritis, in doses of 0.5 to 1.5 Gm. (8 to 24 gr.) S. Torescu directs it to be prepared in the following manner (*Zeit. d. allg. Oester. Ap. V.*, 1891, No. 32):

Dissolve 200 parts of salicylate of sodium in 5,000 parts of distilled water, filter, and add to the filtrate 10 parts of solution of soda, spec. grav. 1.160. Also treat 100 parts of pure calcium carbonate with enough acetic acid to produce a neutral solution, which is to be diluted with water to 2,000 parts. Pour the calcium acetate solution into that of the sodium salicylate, collect the resulting precipitate upon a filter, wash it repeatedly with distilled water, and dry it at a temperature not exceeding 35° C.

Calcium salicylate is a white powder, consisting of microscopic, rhombic, transparent crystals. It is odorless and tasteless, soluble in 2,000 parts of water, more readily in carbonic-acid water. In dilute acids it is very easily soluble.

Antiseptic Adhesive Pomade.—The following is employed in the Hôpital Saint-André, in place of adhesive straps, to keep the protective dressings in close apposition to the skin:

℞ Oxide of Zinc	gr. x.
Chloride of Zinc	gr. xiv.
Gelatin	ʒ x.
Water	ʒ ij.

It is also found very serviceable in dressing wounds of the face.

Does Hydrocyanic Acid Precipitate Morphine Salts?

In 1871 Prof. J. M. Maisch found that pure hydrocyanic acid does not precipitate salts of morphine, but that alkaline cyanides precipitate the alkaloid, and not a cyanide of the alkaloid. In 1890 (*Amer. Journ. Pharm.*, April) he again called attention to that statement. He also stated that if solutions of salts of morphine in cherry-laurel water give a precipitate, this is due to the faulty preparation of the water, probably the presence of magnesia in form of cyanide of magnesium; while *distilled* cherry-laurel water is without action on morphine salts.

Ch. Patronillard now contradicts Prof. Maisch, and asserts that cherry-laurel water, prepared according to the *Codex* (by distillation), and containing 50 Mgm. of hydrocyanic acid per litre, *does* precipitate morphine. The precipitate is crystalline, forms slowly, and adheres to the sides of the glass so firmly that it cannot be detached by agitation. At the same time another, amorphous, whitish precipitate is formed which can easily be diffused, but which does not contain a trace of alkaloid.

Patronillard employed samples of cherry-laurel water obtained from different sources for his experiments. Among them he found one which appeared to confirm Prof. Maisch's statement. But on examination this was found to contain 49 Mgm. of HCN in a litre, in form of calcium cyanide. When treated with oxalic acid, it immediately gave a precipitate of oxalate of calcium. Chloride of barium gave no reaction. It left 0.290 Gm. of residue per litre on evaporation. It was certainly made artificially from essential oil of cherry laurel incorporated with water by means of calcium carbonate, and the subsequent addition of hydrocyanic acid.—After *Journ. de Pharm.*, 1891, 533.

Ortho-Cresol Iodide.

Ortho-cresol iodide, as well as a derivative from it (containing isobutyl), which latter is known as europhen, is recommended as a substitute for iodoform. Bayer & Co. are the manufacturers. It is a fine, light powder of yellowish color and a rather strong, not agreeable odor, very soluble in alcohol, ether, chloroform, and particularly so in fatty oils. In water it is insoluble. On rubbing it between the fingers it leaves a sensation (the same as does aristol) as if it were a resinous body. The powder adheres very firmly to the hands and to instruments, so that it is necessary to clean them with alcohol.

Ortho-cresol iodide passes through the organism without parting with more than a trace of iodine; hence intoxication is not to be feared. Whether it will form a satisfactory substitute for iodoform time will show. It has been found very efficient as a remedy in abnormal secretion of the nasal membranes.—After *Pharm. Post.*

Color Reagent for Essential Oils.

Perrot reports that the identity and purity of certain essential oils may be determined by the use of an acetic acid solution of pure Paris violet (dimethylaniline violet). He found that when this reagent is applied to certain seeds containing essential oils, the oil cells become tinted, while the protoplasm and the membranes remain unchanged. The reagent does not affect such fatty oils as oil of almonds, olive, poppy, or castor oil, etc., nor pure hydrocarbon oils, like oil of turpentine or lemon.

He directs the reagent to be prepared as follows:

Dimethylaniline Violet	10 Gm.
Alcohol, 90 per cent	100 Cc.
Distilled Water	90 "
Glacial Acetic Acid	10 "

Ten Cc. of this reagent are mixed with an equal volume of ordinary acetic acid, and 80 Cc. of alcohol of 40 per cent are then added.

Into a small test tube a few drops of the essential oil to be examined are introduced, and a small quantity of the reagent then added. The whole is agitated and then set aside, when the oil will separate, colored or otherwise, as the case may be. If the reaction is doubtful, the microscope may be called in as an aid, or the essential oils of canella, peppermint, anise, mustard, bitter almond, lavender, etc., acquire in contact with this reagent a decided violet tint, while those of santal, turpentine, cedar, bergamot, lemon, copaiba, and similarly constituted ones are not altered.—After *Rivista di Merciologia*, 1891, 270.

[*Note by Ed. Am. Drugg.*—The principle of the reaction above described is not new, the power of certain essential oils of being tinted by—that is, dissolving—certain aniline colors having been previously proposed by several authorities. In many cases the reaction is valueless. Only in such cases where it is known that a genuine oil would remain untinted would the test be of value, for if a tint were produced it would show the presence of some adulterant capable of dissolving the aniline color. But it would give no clue as to its nature. Nevertheless, Perrot's reaction may deserve further examination.]

Selected Formulæ from the German Unofficial Formulary.

[Continued from page 38]

Plumbum Tannicum.

Tannate of Lead (Plumbi Tannas).

Solution of Subacetate of Lead	30 parts.
Tannic Acid	10 "
Water	a sufficient quantity.

Pour the solution of subacetate of lead, under constant stirring, into a cold solution of the tannic acid in 180 parts of water. Collect the precipitate upon a filter, wash it, and dry it at a gentle heat, not exceeding 30° C.

Plumbum Tannicum Pultiforme.

Pasty Tannate of Lead.

Oak Bark, cut (or bruised)	8 parts.
Solution of Subacetate of Lead	a sufficient quantity.
Water	a sufficient quantity.
Alcohol	1 part.

Boil the oak bark with a sufficient quantity of water for half an hour, so that, after straining, the decoction will weigh 40 parts. Filter this, and add to the filtrate solution of subacetate of lead as long as a precipitate is produced. Collect this on a filter, transfer the still damp, pasty mass (amounting to about 12 parts) into a glass vessel and mix it with the alcohol.

Pulvis aërophorus cum Magnesia.

Magnesia Effervescing Powder.

Tartaric Acid	1 part.
Lemon-Oil Sugar	2 parts.
Sugar, in moderately fine powder	3 "
Magnesium Carbonate	4 "

Reduce them to a uniform, moderately fine powder, and mix them thoroughly.

Lemon-oil sugar is prepared by triturating sugar with oil of lemon in the proportion of 30 gr. of the former to 1 drop of the latter.

Pulvis contra Pediculos.

Powder against Lice (hair lice).

Stavesacre Seed	2 parts.
Cevadilla Seed	2 "
White Hellebore	1 part.
Tobacco Leaf	8 parts.

Reduce them to a coarse powder and mix well.

Pulvis dentifricus niger.

Black Tooth Powder.

Wood Charcoal	8 parts.
Cinchona	2 "
Sage	1 part.
Myrrh	1 "

Reduce them to a fine powder and mix well.

Sal Carolinum factitium crystallisatum.

Crystallized Artificial Carlsbad Salt.

Sodium Sulphate (cryst.)	5 parts.
Sodium Carbonate (cryst.)	2 "
Sodium Chloride	1 part.
Hot Water	12 parts.

Dissolve the salts in the hot water, filter the solution, and evaporate it until a film begins to form on the surface, then set it aside to crystallize. Separate the crystals from the mother liquid and transfer them (without washing them with water) to bottles. The mother liquid is to be rejected.

The resulting crystals are colorless, with a tendency to effloresce, and are soluble in 2.5 parts of water.

Sapo Unguinosus.

"Fat Soap."—Mollin.

Solution of Potassa (18.75 per cent)	40 parts.
Lard	40 "
Alcohol	4 "
Glycerin	15 "

Heat the solution of potassa, add the lard, and stir well during half an hour; then add the alcohol, maintaining the temperature, during twelve hours, at 50° to 60° C., and lastly add the glycerin.

[The original directs 50 parts of official solution of potassa to be evaporated to 40 parts. As the solution of potassa of the German Pharmacopœia contains 15 per cent of potassium hydrate (KOH), and would have to be specially made for this purpose (since that of the U. S. Pharmacopœia only contains 5 per cent), it is preferable to make at once 40 parts of an 18.75-per-cent solution.]

Syrupus Balsami Peruviani.

Syrup of Balsam of Peru.

Balsam of Peru	1 part.
Sugar	a sufficient quantity.
Water	a sufficient quantity.

Upon the balsam of Peru pour 10 parts of hot water and set it aside, occasionally shaking, during twenty-four hours, at a temperature between 15° and 20° C.; then filter. To 8 parts of the filtrate add 12 parts of sugar and dissolve.

Syrupus Chinæ [Cinchonæ].

Syrup of Cinchona.

Cinchona (red), in coarse powder	4 parts.
Cinnamon, in coarse powder	1 part.
Red Wine	25 parts.
Sugar	30 "

Macerate the cinchona and cinnamon during forty-eight hours with the red wine at a temperature between 15° and 20° C.; then strain, express, and filter. To 20 parts of the filtrate add the sugar and dissolve.

Cologne Water.

A RECENT number of the *Seifenfabrikant* (1891, No. 53) contains some new recipes for cologne which are stated to yield very satisfactory products.

1. *With Distillation.*

Benzoin (Siam)	66 Gm.
Oil of Lavender	133 "
" Rosemary	66 "
" Neroli	350 "
" Petigrain	350 "
" Cedrat	350 "
" Portugal	700 "
" Bergamot	700 "
" Rose-Geranium (French)	60 "
Alcohol (deodorized) of 95 per cent	140 L.

Dissolve the oils, in the succession mentioned above, in the alcohol, then add the finely powdered Siam benzoin. Allow the mixture to stand during four weeks, repeatedly shaking. Then transfer it to a still with a suitable quantity of water, and distil off 135 L., the first 2 L. being rejected. Allow the distillate to season during four weeks in glass vessels impervious to light, in a dark room, when the product will be ready for use.

The product is stated to be a close imitation of the genuine cologne water. Of course the essential oils must be the very finest and freshest which can be procured.

2. *Without Distillation.*

Oil of Bergamot	5 Gm.
" Lavender	2 "
" Rosemary	2 "
" Neroli	4 "
" Petigrain	2 "
" Rose	12 drops.
" Lemon	20 Gm.
Musk	0.5 "
Alcohol (deodorized) of 90 per cent	1 L.

Digest during five days, frequently shaking, and filter.

3. *Another.*

Oil of Neroli	4 Gm.
" Rosemary	2 "
" Lavender	1 "
" Lemon	15 "
" Bergamot	15 "
Benzoin, pure white tears	1 "
Alcohol (deodorized) of 95 per cent	1 L.

Digest during three days, frequently shaking, and filter.

The Sons of Hippocrates.

[READ AT THE ANNUAL DINNER OF THE BOSTON DRUGGISTS' ASSOCIATION.]

Prized are the sons of old Hippocrates,
Wiser than Plato deemed, or Socrates—
Men look to you as sage decoctors,
Supplying, yet supplanting, doctors,
Adroit and ever-ready mixers
Of life's nepenthes and elixirs.

When Nature fails they fain assist her
With pellet, plaster, pill, or blister;
When suffering from their late collations,
Take potions for the strong potations;
From hand to hand, from lip to lip
They pass the nostrums for La Grippe,
And hold aloft as tonics' queen
The omnipresent bark, quinine.
Infants, in language metaphoric,
Call pa to bring their paregoric;
From babe to man each fondly hugs
Some dream of sweet or drastic drugs.

Some with cosmetics in their eye
Come to you for things prepared to dye;
And when disease has changed his tactics
They meet him with your prophylactics;
They ask you with his power to wrestle
By force of mortar and of pestle,
To train on him your trade's artillery
And put him, as it were, in pillory.
His fortress you are asked to shell
With seidlitz powder or Rochelle,
And, when his onslaughts yet grow louder,
To make him sweat with Dover's powder,
For 'tis said there's something quite terrific
In fire of powder sudorific.

We don't incline to be too cynical
On matters curative and clinical—
How marvellous to escape confusion
'Mid tincture, extract, and infusion!
But now we know men go to college
To get their pharmacological knowledge.
Once did those dealers give alarm
Whose pharmacy was from a farm.

Go on as satellites of health
'Neath ægis of the Commonwealth,
Ransack with cumulative power
The realm of plants from root to flower,
Materia medica prepare
For ills to which all flesh is heir;
Men cannot spare your strong defence—
With druggists or dispensaries dispense.

HENRY O'MEARA.

American Druggist

AN ILLUSTRATED BI-WEEKLY JOURNAL.

VOL. XXI., No. 4. WHOLE No. 226.

WILLIAM WOOD & COMPANY,
PUBLISHERS,
56 & 58 LA FAYETTE PLACE,
NEW YORK, N. Y.

SUBSCRIPTION PRICE per year, - - - - - - - $1.50
SINGLE COPIES, - - - - - - - - - - - .10

Address all communications relating to the AMERICAN DRUGGIST *to* WILLIAM WOOD & Co., *56 and 58 La Fayette Place, New York City, to whose order all postal money orders and checks should be made payable.*

The AMERICAN DRUGGIST *is issued on the 1st and 15th of each month. Changes of advertisements should be received before the 5th and 20th. New advertisements can occasionally be inserted after the 10th and 25th.*

EDITORIAL.

MEASURING THE CONTENTS OF CASKS, ETC.

WE have been asked to point out a simple method by which the volume contents of a barrel of alcohol, or a package of any other liquid, may be ascertained with reasonable accuracy without having to measure the contents. This problem is one which constantly turns up in large establishments where liquids are bought or sold by the quantity. It is customary to trust to public gaugers in certain cases, yet it is impossible to say what may have happened to the package after the gauger got through with it. Hence it is, under all circumstances, desirable to have at hand a simple method of checking the correctness of an invoice. Measuring, of course, is too slow an operation. Moreover, if the temperature is much above or much below 60° F., the result by measure will vary more or less widely from the truth. Since the internal revenue tax on distilled spirits—and it is alcohol and distilled liquors which we have principally in view at present, though the method below given applies to *all* liquids—is determined upon the amount of proof gallons at a temperature of 60° F., the gauger, after measuring the capacity of the cask and the space not occupied by liquid (which is called ullage or wantage), must apply certain corrections (for temperature) to the volume capacity found, so as to obtain the latter exactly for 60° F. Now, although the method below described for checking the correctness of the volume contents is very simple, yet it cannot be freed of the necessity of finding the true specific gravity of a portion of the liquid. This is most readily done by means of a good hydrometer.

In order to understand the method of calculation given below, the following explanation will be sufficient: Taking the specific gravity of water as 1000, 1 gallon of it, at 60° F., will weigh 58,328 gr., or 8.33259 pounds.* On calculating in pounds (and fractions of a pound) the weight of 1 gallon of any liquid having a higher or lower specific gravity than water, it will be seen, on examining the figures, that for each unit under 1000 (in the specific gravity) the weight is 0.00833† *less* than that of water, and for every unit over 1000 (in the specific gravity) the weight is 0.00833 *more* than that of water. For instance:

Spec. Grav.	Weight of 1 gallon in pounds.	Difference.
1002	8.34925	
1001	8.34092	0.00833
1000	8.33259	0.00833
999	8.32426	0.00833
998	8.31593	0.00833
		etc., etc.

It follows that when the specific gravity of any liquid is known, it is only necessary to multiply this figure (taken as a whole number, water being reckoned as 1000) with 0.00833. The result will be the weight of 1 gallon in pounds and fractions of a pound. In other words:

Spec. grav. × 0.00833 = number of pounds in 1 gallon.

If we now have, for instance, a cask of alcohol, and have ascertained the specific gravity of the latter—say 820—then 1 gallon of it will weigh:

820 × 0.00833 = 6.8306 pounds.

If we then further know the total *weight* of the contents of the cask, we need only divide that weight by 6.8306 to find the number of gallons it contains.

The general rule, therefore, is as follows:

By means of a good hydrometer take the specific gravity of the liquid in a sample brought to the temperature of 60° F. (or close to it), and express this specific gravity as a whole number (water being taken as 1000, not as a decimal fraction 1.000), which number multiply by 0.00833, thus finding the weight of 1 gallon of the liquid.

Weigh the cask with contents, then empty the latter in any convenient manner and weigh the empty cask again. (Here it must not be forgotten to replace the bung, also any charcoal, etc., which may have dropped from the cask, such as is the case with whiskey). The difference represents the weight of the contents in pounds.

Now divide this weight by the weight of 1 gallon in pounds, previously determined.

The result will be the number of gallons and fractions of a gallon in the barrel or cask.

Since our platform scales are almost exclusively adjusted for avoirdupois weight, we have preferred to adhere to the latter. For metric weight the principle would, of course, be the same, though the calculation would be more simple. It would only be necessary to divide the weight of the contents, in kilos, by the specific gravity, to find the measure in litres:

$$\frac{\text{Weight in kilos}}{\text{Spec. grav.}} = \text{Measure in litres.}$$

There is nothing especially new about all this, yet, presented in this shape, it may be of more practical use to our readers.

In 1874 Dr. Edward R. Squibb published an elaborate table giving the specific gravities, percentages by volume and weight, weight of 1 gallon, weight of 40 gallons, weight of 1 pint, etc., of alcohol from 0 to 100 per cent (Proceedings American Pharmaceutical Association, vol. xxi., 566–572). This table is exceedingly useful, and may be employed for making the calculation previously explained; yet for the special purpose mentioned in our correspondent's letter our formula leads more rapidly to an approximately correct result:

$$\frac{\text{Weight of total contents}}{\text{Spec. grav.} \times 0.00833} = \text{Gallons of liquid.}$$

* This is sufficiently close for all practical purposes. The weight of 1 fluid-ounce of water has been taken as 455.69 grains.

† For practical purposes, it is not necessary to consider the decimals after the fifth.

CHLORAL AS AN ANTISEPTIC.

We were recently consulted by a prominent surgeon regarding the best method of destroying the bad odor arising from an ulcerated surface on the body of a patient in one of the hospitals. Several agents had previously been used, some of which promptly subdued the odor, but caused untoward symptoms and had to be discontinued. Remembering that chloral, in contact with alkaline liquids, was split into chloroform and formate of the alkali, and thinking that the gradual and constant generation of chloroform would act as an efficient antiseptic, we suggested an aqueous solution of chloral. Accordingly a 10-per-cent solution was at first used, which was afterwards increased to 20 per cent. The application was made by means of a piece of lint dipped into the solution and laid upon the ulcer for half an hour or less, according as the patient could bear it. It was then replaced by lint dipped into a weak solution. When the latter was found to be insufficient, the application of the strong solution was renewed. In this way a complete control could be kept over the effluvium from the ulcer and the healing process was materially hastened.

In connection with the preceding we may state that, on theoretical grounds, we believe the application of a strong aqueous solution of chloral (perhaps with a little cocaine to subdue any pain caused by the application) would be a remedy very much worth trying in the early stages of diphtheria. Certainly a strong solution of chloral is an efficient bactericide.

The leading article of this number relates to an institution which is probably unique in character as related to municipal corporations of this country. It is the outgrowth, during more than twenty years, of the needs of large and diverse asylums for the care of the sick, poor, and perverse of a great city, and furnishes a most interesting example of the means for insuring a wise economy without parsimony in the supply of medicines and surgical appliances; for insuring as high a grade of excellence as possible in such supplies, and providing for a quick response to such demands as are liable to occur in cases of emergency.

For the readers of the AMERICAN DRUGGIST the desk and chair in one corner of the office and private laboratory, shown on page 55, should possess features of personal interest, as they are the *sanctum-sanctorum*—as it were—of one whose labors during many years have rendered the periodical an authority of the highest excellence in its province. C.

Prof. Chas. P. Pengra died at his home, No. 130 Dartmouth street, Boston, Mass., at 1 A.M. January 31st, 1892. He was 31 years of age, and the earlier portion of his life was spent in Michigan. At the age of 19 he had completed the course of study in the medical department of the University of Michigan, but on account of his age his degree was withheld until the following year. In 1883 he received the degree of pharmaceutical chemist from the same university. During 1881–'84 he was assistant to Prof. V. C. Vaughn, of Ann Arbor, the eminent physiological and sanitary chemist. In 1884 he assumed the chair of materia medica and botany in the Massachusetts College of Pharmacy, Boston. He has also for several years been professor of dental histology and microscopy in the Boston Dental College. Both of these positions he held at the time of his death.

He was a fellow of the American Association for the Advancement of Science and of the Massachusetts Medical Society, and was a member of the Convention for Revision of the U. S. Pharmacopœia, 1890.

He was an original investigator, being especially known for his researches upon the purification of water by freezing. The frequent contributions which have appeared in various pharmaceutical journals from his pen have made his name familiar.

Prof. Pengra was a favorite with his classes, being clear, thorough, and possessed of a rare faculty of interesting his students in the subjects that he taught. His remains were taken to his Western home for interment. He leaves a wife and one child.

NEWS AND NOTES.

ILLINOIS.

WILLIAM SAUNDERS, of Ontario, Canada, spent several days in Chicago as special World's Fair Commissioner for the Dominion of Canada.

The SEARLE & HERETH Co. have established their office at 194 Randolph street, Chicago, the laboratory remaining at Canal and Jackson streets. This renders them much more accessible to the drug trade.

LOUIS BRINKMAN, of Warsaw, Ill., graduate of the Chicago College of Pharmacy, class 1887, was in Chicago recently for a week's sojourn with his bride.

CHARLES RIMMELE, the druggist at 2459 Wentworth avenue, is now enjoying the full-fledged luxuries of married life. A nine-pounder arrived at his house recently.

AUGUST FRANK, the druggist at 14th street and Centre and Blue Island avenues, has disposed of his store, which has since its sale been moved to Franklin Park, where Mr. Frank remains in charge as manager. CHARLES KASBAUM, another druggist on one of the intersections of these three streets, has moved into the building vacated by the sale of Frank's store, and has leased his former place of business as a barber shop.

The senior class of the Chicago College of Pharmacy organized recently, and the following were elected as officers: Fred. G. Burnitt, president; Paul Wickert, vice-president; Elba Van Dike, secretary; William W. Hall, treasurer; Henry M. Moffett, salutatorian; and Will S. Voit, valedictorian.

The governor has appointed Isaac N. Coffee to succeed Francis A. Prickett as member of the Board of Pharmacy, whose term of office expired December 31st, 1891. The board met recently and elected the following officers: W. P. Boyd, president; T. N. Jamieson, vice-president; Frank Fleury, secretary; and H. H. Green, treasurer. At an examination held by the board in Springfield on the 16th of January the following received certificates as registered pharmacists: Garrison Brown, Crescent; J. E. Dunn, Bloomington; Oliver G. Hudson, Springfield; Fred. C. Parker, Pullman; Fred. H. Powers, Shelbyville; and Otto L. Graessle, Henry M. Moffett, and L. W. Peterson, of Chicago. The following passed as assistant pharmacists: Herbert M. Anderson, Peoria; Chas. W. Armstrong, Decatur; Wm. D. Clay, Tuscola; Chas. Dressbach, Decatur; Joseph Husing, Decatur; Robert L. Hunsaker, Princeton; Lewis F. Pate, Shelbyville; Theo. W. Rosson, Pomona; Cyrus H. Smith, Abingdon; and Chas. A. Hopkins, Christian H. Koentz, August Larsson, Chas. W. Marshaus, and Chas. W. Prothero, Chicago. The next meeting will be held in Chicago on February 6th.

WORLD'S FAIR NOTES.

A consignment of exhibits for the Exposition—the first received from a foreign country—arrived at Chicago January 26th from Japan.

In Colorado's exhibit will appear a very complete showing of the flora of the State. Miss Alida P. Lansing, who has been in charge of the matter, gathered more than one thousand varieties last summer, including fifteen or more which had never been classified.

Director-General Davis has declared that all applications for space ought to be presented by July 1st, 1892.

State Board of Pharmacy, Illinois. *Practical Examinations.*—The State Board of Pharmacy of Illinois have perfected arrangements to hold regular monthly practical examinations, at No. 173 39th street, Chicago, beginning on Tuesdays, February 16th, March 15th, April 12th, May 17th, July 12th, August 16th, September 13th, October 18th, November 15th, December 13th, 1892, and at Springfield, Room 3, State House, Tuesday, June 7th, 1892, and continuing from day to day until all applicants have been examined. The fee for this examination will be $5 for either licentiate in pharmacy or assistant pharmacist certificate.

Special emergency, practical examinations may be taken at any time between these dates, in Chicago, at 173 39th street, upon proper application to or arrangements

by letter with T. N. Jamieson, 3900 Cottage Grove avenue, Chicago, or L. C. Hogan, 6443 Yale street, Englewood, but, owing to the increased expense in giving this emergency examination, the fee will be $15, only $5 of which will be returned in case the applicant fails to pass either as registered pharmacist or assistant pharmacist.

A general average of 75 per cent for licentiate in pharmacy and 50 per cent for assistant pharmacist will be required at all of these examinations. Information as to character of examinations, and blank applications showing eligibility and requirements for examinations, furnished by the secretary, Mr. Frank Fleury, of Springfield, Ill.

Mr. I. N. Coffee, of Cairo, was appointed by Governor J. W. Fifer, February 1st, 1892, as member of the State Board of Pharmacy, Illinois, to succeed Mr. F. A. Prickett, of Carbondale, term expired; Mr. Geo. H. Sohrbeck, of Moline, and Mr. Charles H. Grube, of Robinson, also nominated by the Illinois Pharmaceutical Association, having withdrawn in favor of Mr. Coffee. The five members of the board for 1892, and organization made February 2d, are: W. P. Boyd, president, Arcola, term expires December 30th, 1892; T. N. Jamieson, vice-president, Chicago, term expires December 30th, 1893; L. C. Hogan, Chicago, term expires December 30th, 1894; H. H. Green, trensurer, Bloomington, term expires December 30th, 1895; I. N. Coffee, Cairo, term expires December 30th, 1896; Frank Fleury, secretary, Springfield, secretary elected by the board annually. Committee on Registrations: T. N. Jamieson, chairman, L. C. Hogan, and H. H. Green. Committee on Finance and Audit: I. N. Coffee, chairman, T. N. Jamieson, and L. C. Hogan. Committee on Complaints and Prosecutions: L. C. Hogan, chairman, H. H. Green, and I. N. Coffee. Committee on Adulterations: H. H. Green, chairman. I. N. Coffee, and L. C. Hogan. The president is ex-officio member of all committees.

RECEIPTS FOR THE YEAR 1891.

To balance on hand, January 1st, 1891.....		$79 09
" R. P.'s original registrations, 125 @ $2.	$250 00	
" R. P.'s by examination, 175 @ $5.....	875 00	
" R. P.'s renewals, 3,603 @ $1....	3,603 00	
" R. A. P.'s original registrations, 169 @ $1.....	169 00	
" R. A. P.'s by examinations, 156 @ $5...	780 00	
" R. A. P.'s renewals, 575 @ $1.....	575 00	
" Delinquent fees collected.....	209 00	6,461 00
		$6,540 09

EXPENDITURES FOR THE YEAR 1891.

By salaries, members' board, secretary, and assistants	$3,649 50	
" expense, personal, members' board, and secretary.....	1,021 75	
" " blank books, stationery, and supplies.....	279 56	
" " printing.....	226 70	
" " postage.....	309 60	
" " miscellaneous.....	373 95	
" " express charges.....	13 50	
" " committees...	194 79	
" Illinois Pharmaceutical Association....	470 74	$6,540 09

FRANK FLEURY,
Secretary.

INDIANA.

THE following recent changes in business in Indiana are noted:

MR. S. F. PORTER has sold a half interest in his store 74 Broadway, Peru, to Mr. C. O. THIEBAUD, who will conduct it under the name of Thiebaud & Co. Mr. Thiebaud has removed his stock from his store at Vevay to the Peru store. Mr. Porter still retains his interest undivided in his two other stores there.

BLOUNT & CARPENTER succeed Blount & Morse in Wabash. Mr. F. M. Blount, of the new firm, is a nephew of Mr. Blount, of the old firm, who retires in favor of younger blood after a service in Wabash and Huntington of forty-four continuous years in the drug business, being the oldest druggist along the line of the Wabash. This is a long experience in the retail drug business. They usually die or retire before that time, mostly the former. The new firm are making extensive alterations in fixtures and large additions to stock.

MR. J. L. HOUSEN, formerly of Union City, Ind., succeeds, by purchase from the creditors, the store 416 Broadway, Logansport, formerly owned by Mr. Klingsick.

MR. WALTER FARQUHAR now has the store 1228 Broadway, Logansport, formerly occupied by C. C. Stewart.

The Marion Co. Drug Association held a regular monthly meeting in the Board of Trade rooms in Indianapolis, Friday afternoon, February 5th. The secretary read a report giving an account of the efforts to collect money to be used in sustaining the Interstate League, the organization of retail druggists that met in St. Louis last fall, whose especial work is to prevent cutting of prices on proprietary articles. Forty dollars were donated toward this fund by the jobbers of the city of Indianapolis, and ten dollars by C. Lilly & Co., the manufacturing chemists. It was voted to transfer at this time thirty dollars to the treasurer of the Interstate League, Mr. George Sloan. After a somewhat animated discussion the executive committee were instructed to add quinine capsules and powders to the uniform price lists in the city.

This organization has done much for its members during the past year. Through its influence the department store that last spring put in a line of proprietary goods and advertised them extensively at cut prices was persuaded to give up this branch of their trade and dispose of their stock to a local jobber. Full and uniform prices now prevail in the city. But for this Association the druggists of the city would have had to pay a license fee of $250 last year for the sale of liquors, instead of no fee as now, and yet there are probably a few, who never attend the meetings, that are still asking what good the Association has done, and are wondering whether it pays to contribute a dollar a year to its maintenance.

From all accounts it does not seem as if the different local associations that go to make up the Interstate League are responding very freely with money to carry on the work.

It is one thing for a delegate to say that he represents so many constituents and that all the money needed can be raised in thirty days' time, and quite another to make good the latter part of the statement. At least it seems to be so with the drug trade. With a membership of over 2,000 in the local associations that go to make up this organization, not over $300 have so far been contributed, or at least have reached the treasury.

S. V. CONNOR & Co., Marion, have recently opened a very handsome new store at 410 Washington street.

MR. R. E. EGBERT, who a short time since sold his drug store in Charleston, Ind., took possession, February 1st, of the store 409 Adams street, Marion, recently purchased of Messrs. Crook & Son. Mr. D. E. Blair purchased the Charleston store.

MR. W. H. BIRCHFIELD now owns the store formerly conducted by Mr. W. C. Lyon, 208 E. Main street, Muncie, Ind.

MR. C. G. WEISS, an old-time pharmacist of Indianapolis, who sold his store a year or more ago and went abroad in pursuit of rest, a short time since purchased the store formerly owned by Mr. Theo. Zell, corner of Market and Delaware streets, Indianapolis.

Lead in Oil of Cassia.—Oil of cassia is exported from China in leaden vessels. The presence of lead in the oil has recently been demonstrated by Mr. Ed. Hirschsohn. A filtered oil of cassia was found, after standing some time, to separate a sediment which, after being washed with ether, showed handsome needle-shaped crystals under the microscope. Upon ignition these crystals left an ash consisting of oxide of lead. When warmed with soda and potassium permanganate they evolved the odor of oil of bitter almonds. Hence Mr. Hirschsohn regards them to be cinnamate of lead. Of 12 other samples of oil of cassia examined 11 were found to contain lead.—*Pharm. Post.*